APPENDIX K: CLEANAIR RESUMES AND CERTIFICATIONS

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CleanAir

Scott Brown
Corporate Quality Leader / Senior Project Manager

Professional Profile

Mr. Brown has more than 26 years of extensive environmental testing experience. He has been with Clean Air Engineering (CleanAir) since March 2000. Mr. Brown has been CleanAir's Corporate Quality Director since January 2015. He oversees and ensures compliance with CleanAir's Air Emissions Testing Quality Manual especially as it relates to the ASTM D7036-16 and other pertinent standards. He also continues in the role of a Senior Project Manager for select Palatine Engineering Group projects.

Previous to his current position, Mr. Brown acted solely as a Senior Project Manager with CleanAir's Advanced Monitoring Group. In that role, he managed multiple projects over a two-year period involving the production, installation and certification of CleanAir's MET-80 Sorbent Trap Mercury Monitoring System (STMMS).

Previous to his current position and the position with the Advanced Monitoring Group, Mr. Brown, worked as a Project Manager for the Palatine Engineering Group. During his 14 years with this group, he oversaw all testing of the Wheelabrator waste-to-energy facilities throughout Florida. These test projects included RATA testing, wet method compliance testing (including PCDD/PCDF, multiple metals, particulate, hydrogen chloride and fluorides) and all preliminary optimizations for newly retrofitted units. Beyond the Wheelabrator projects, Mr. Brown also managed hundreds of other projects over a wide variety of industries, including, but not limited to, coal-fired power, paper manufacturing, oil refineries and secondary aluminum.

Prior to joining the CleanAir team, Mr. Brown worked as a Project Manager for Best Environmental in Hayward, California, and as a Technician, Senior Technician and, ultimately, Department Manager for Normandeau Associates in Richmond, California. In his 25 years of experience, he has been involved with hundreds of testing projects and is very experienced in MSW compliance testing, APC performance guarantee testing, and continuous emission monitoring systems (CEMs), including certification and relative accuracy. Some examples of the types of projects include:

- municipal waste facilities (Subpart Cb testing);
- secondary aluminum NESHAP testing (Subpart RRR);
- coal-fired boiler engineering studies and performance guarantees for SO_2/SO_3, multiple metals, particulate and particle sizing, as well as hydrogen halides and halogens;
- third stage separator (associated with FCC units at refineries) high pressure particulate testing;
- metals and mercury balance testing for engineering purposes, in regards to the Industrial Boiler MACT;
- thermal oxidizer destruction efficiency and New Source Performance testing;
- fluidized catalytic cracking unit non-sulfate particulate;
- boiler FGR compliance testing (analyzer methods);
- SCR, FGD, baghouse and ID fan performance guarantee;
- asphalt batch plant compliance testing;
- hazardous waste trial burn test projects;

- gas turbine RATAs;
- landfill flare compliance and destruction efficiency testing.

Relevant Experience

Wheelabrator Technologies, Inc.; Florida
Managed and performed yearly Subpart Cb compliance and RATA testing on five (5) Wheelabrator plants in Florida. Mr. Brown has overseen the testing and final report writing for all plants since 2000. The testing includes EPA Methods 23, 29 and 5/26A, as well as RATAs on all units at all facilities.

Babcock & Wilcox Company; various locations
Managed several engineering studies at various coal-fired power plants to assess FGD scrubbers, in regards to SO_2/SO_3, metals (including Hg), hydrogen halides and particulate abatement. Mr. Brown has overseen the testing and final report writing for all associated projects. The testing included EPA Methods 5B/202, 13B, 26A and 29, as well as the Ontario Hydro Method or modified Method 30B for speciated mercury. These projects often included on-site analysis of SO_3 by ion chromatography as well as on-site mercury analysis by Ohio Lumex.

Black and Veatch; Powersouth Lowman Generating Facility, Units 1 and 2; Leroy, AL
Project managed, test led and wrote the test reports for the APC performance guarantee on the newly installed SCRs and JBR at the Powersouth Lowman Generating Facility in Leroy, Alabama. The testing included SO_2 to SO_3 conversion efficiency, ammonia slip and NO_X removal efficiency of the SCRs and SO_2 and SO_3 removal efficiency of the JBR. On-site ion chromatography for SO_3 and ammonia were part of this projects scope.

Black & Veatch; Dallman, Unit 4, CWLP; Springfield, IL
Project managed, test led and wrote the test reports for the start-up boiler and APC performance guarantee on the new Dallman, Unit 4, at City Water Light & Power in Springfield, Illinois. The testing included SO_2 to SO_3 conversion efficiency, ammonia slip, HCl, Hg, particulate and SO_2 removal efficiency, as well as CO, NO_X, VOC, trace metals and H_2SO_4 emission rates. On-Site Ion Chromatography for H_2SO_4 was part of this projects scope.

Hoosier Energy; Merom Generating Facility, Unit 2; Sullivan, IN
Project managed, test led and wrote the test reports for the APC performance guarantee on the newly installed SBS injection system (for SO_3 Mitigation) and Electrostatic Precipitator at the Merom Generating Station near Sullivan, IN. The testing included SO_3 testing utilizing the controlled condensation method. Additionally Method 17 was utilized to exhibit the new ESP's particulate removal efficiency. On-site ion chromatography for sulfates was part of this projects scope.

Ameren Coffeen Generating Station, Units 1 and 2; Coffeen, IL
Project managed, test led and wrote the test reports for the APC performance guarantee on the new ID Fans and FGDs installed on Units 1 and 2. The testing included HCl, Hg, particulate, $H2SO_4$ and SO_2 removal efficiency and emission rates. On-Site mercury and H_2SO_4 were part of this projects scope.

Hydro Aluminum North America; various locations
Managed and performed Subpart RRR NESHAP compliance tests at three (3) Hydro Aluminum plants across the United States. Mr. Brown has prepared testing protocols, designed the test programs and completed final reports for all facilities. EPA Methods 23 and 5/26A were included in all test programs.

Shaw and Webster; Covert, MI
Managed start-up compliance tests for three (3) gas turbines. Testing included EPA Methods 5/202, 201A (PM_{10}), 320 (FTIR for formaldehyde), Conditional Method 0027 (ammonia), as well as all gaseous components (NO_X, CO and THC). Mr. Brown designed the test protocol and, ultimately, completed all reporting requirements for this project.

Chevron; Richmond, CA
Managed and performed yearly compliance RATA, Method 8 (SO_2) and Method 5B (non-sulfuric acid particulate matter), as well as quarterly cal gas audits and Method 5B testing of the fluidized catalytic cracking unit. Also involved in testing many other processes at the refinery.

Dow Chemical; Pittsburg, CA
Performed hazardous waste trial burn project on the MS-HAF and HS-HAF Units. Utilized BIF methodology for hexavalent chromium, hydrogen chloride, multiple metals and performance specifications for continuous emission monitoring of CO and O_2.

U.S. Steel; Fremont, CA
Conducted PCDD/PCDF, multiple metals, hexavalent chromium and PAH tests on the main baghouse. Performed all laboratory duties, including chemical preparation and sample recovery.

Teichert Aggregates; California
Tested many asphaltic rotary kiln batch plants run by Teichert Aggregates all over northern California. Performed particulate, THC, NO_X, O_2 and CO testing at the baghouse outlets.

Browning Ferris Industries (BFI); California
Conducted test programs on various landfill gas flares around California. Testing at all flares included CO, NO_X, THC, SO_2, landfill gas characterization and hazardous air pollutant (HAPS) destruction efficiency.

Louisiana Pacific; Oroville, CA
Performed yearly compliance testing of all sources at the LP plant. Units tested included various baghouses for PM_{10}; two (2) boilers for CO, THC and NO_X; and a regenerative thermal oxidizer (RECO) for particulates (by EPA Methods 5 and 202), CO, NO_X, THC and formaldehyde (by CARB Method 430).

Professional Associations
ASTM International, Source Evaluation Society

Professional Certifications
Qualified Stack Testing Individual (QSTI) Groups I, II, III and IV, Application No. 2007-053

Education
Bachelor of Science in Environmental Science, 1986: University of Illinois, Urbana-Champaign

William Ansell
Midwest Engineering Group Technical Leader / Project Manager

Professional Profile
Mr. Ansell has over 25 years of experience in the environmental field in the areas of air emissions testing, consulting and permitting. He has provided project management, field testing, sample analysis and regulatory compliance services to a wide variety of industrial clients, both in the continental United States and overseas. His project management experience has included arranging international shipments of testing equipment, including IATA-designated dangerous goods, as well as obtaining work visas.

The major industries in which Mr. Ansell has process and air emissions experience include:

- municipal and medical waste combustors;
- petrochemical industries and refineries;
- utility and institutional coal, oil, and natural gas-fired boilers;
- foundries and steel mills;
- simple and combined cycle gas turbines;
- printing and coating facilities;
- automotive assembly plants;
- glass plants;
- food processing facilities;
- ammunition plants; and
- pulp and paper mills, as well as other industrial sources.

Relevant Project Experience
ABB Power Generation, Inc.; Korea Electric Power Corporation; Bundang, South Korea
Project Manager for an emissions test program conducted on a combined cycle gas turbine generator to collect data for completing construction permits for future similar installations in the United States. Pollutant emissions determined included filterable and condensable particulates, NO_X, CO, THC, methane, ethane, propane, propylene, iso-butane, butane and butene. Preparation and mobilization for the project, including the shipment of all test equipment and reagents, was conducted in a period of less than two weeks.

AmerenEnergy Resources Generating Company; Duck Creek Generating Station; Canton, IL
Project Manager and Field Test Leader for SCR performance guarantee test program. The test program included determining flue gas velocity, temperature, O_2, and NO_X distribution across the SCR inlet and outlet ducts and the O_2 and NO_X distribution across the SCR outlet tuning grid. CleanAir's Multi-point Automated Sampling System (MASS) was utilized to determine the NO_X distribution at the SCR outlet tuning grid. The SO_3 conversion efficiency across the SCR was determined using controlled condensation sampling at the SCR inlet and outlet ducts. In addition, system pressure drop and ammonia slip were also determined. The guarantee tests, including on-site analysis and preliminary data reduction, were completed within a 10-hour period with a 10-man test crew.

AM General Corporation; Hummer H2 Assembly Plant; Mishawaka, IN
Project Manager and Field Test Leader for a VOC capture and destruction efficiency test program conducted on the e-coat, prime and topcoat paint lines. Project included verifying that enclosures surrounding paint lines met criteria for permanent and temporary total enclosures, per EPA Method 204. VOC emissions from five sources to the control device, as well as fugitive VOC emissions from 16 sources, were determined simultaneously, following EPA Methods 1-4, 25A and 204B. Tests were conducted with a nine man test crew.

Argonne National Laboratory; Argonne, IL
Project Manager for a test program conducted to collect baseline emissions data from the central heating plant at a Department of Energy research facility. The test program was conducted to develop Title V emission limits and evaluate of the heating plant's boilers. Emissions were measured and compared to operating data from each of the five coal and natural gas-fired boilers at the central heating plant. O_2, SO_2, NO_X and CO emissions were continuously monitored for approximately 10 days from each of the boilers and particulate emissions were measured from Boiler No. 5. The test program also required the preparation of a comprehensive site-specific health and safety plan that met Argonne National Laboratory and Department of Energy requirements.

Fleischmann's Yeast; Memphis, TN
Project Manager and Field Test Leader for annual VOC emission test programs to meet requirements of the facility's Title V Permit and 40 CFR 63, Subpart CCCC - National Emissions Standards for Hazardous Air Pollutants: Manufacturing of Nutritional Yeast. Fleischmann's monitors brew ethanol concentrations during production instead of installing fermenter exhaust monitors. The NESHAP requires testing to develop a brew to exhaust correlation calculation relating the brew ethanol concentration during fermentation to THC emissions concentration as propane.

Test programs were conducted over complete production batches, 13 to 31 hours in duration requiring multiple test crews for 24-hour coverage on-site. The velocity head, stack temperature and VOC concentration from the exhaust of each fermenter were continuously monitored and the data recorded, using CleanAir's data acquisition system. CleanAir's data acquisition system was also connected to plant instrumentation to record brew ethanol concentrations within each fermenter. The methanol response factor compared to propane was determined on-site for the THC analyzers used, following a modified version of EPA Method 204F.

Jorf Lasfar Energy Company; El Jadida, Morocco
Project Manager for a performance test program conducted on two flue gas conditioning (FGC) systems installed on coal-fired boilers. The test program included the determination of SO_2 and SO_3 concentrations following a modified version of EPA Method developed by Chemithon, as well as particulate sampling and fly ash resistivity analysis.

Kraft Foods, Inc./Oscar Mayer Foods Corporation; Madison, WI
Project Manager, Field Test Leader and Field Technician for dozens of test programs conducted on various smokehouses and boilers. Test programs have included determining formaldehyde, acetaldehyde and acrolein destruction efficiencies of the RTO's controlling smokehouse emissions, and comparing CARB, NIOSH and EPA test methods for determining aldehyde and ketone emissions from smokehouses.

RMT, Inc.; Wausau Paper Corporation's Rhinelander Paper Mill; Rhinelander, WI
Project Manager and Field Test Leader for a VOC capture and destruction efficiency test program on a thermal oxidizer system serving a paper coater line. The test program included the construction of a temporary total enclosure (TTE), which surrounded the coater to allow the VOC capture efficiency to be determined and the process to be operated normally. A fugitive vent system was used in conjunction with the TTE to prevent VOC concentrations from building up within the enclosure. VOC sampling was conducted simultaneously at the inlet and outlet of the thermal oxidizer and at the fugitive exhaust vent off of the TTE. The results of the three capture efficiency runs met the data quality objective of being within five percent of each other.

Solutia, Inc.; W.G. Krummrich Plant; Sauget, IL
Project Manager and Field Test Leader for VOC emission test programs conducted to gather data for designing improved pollution control equipment at a petrochemical refinery. The test program was conducted on highly flammable exhaust gas streams over multiple batch reactor production cycles. VOC sampling was conducted on a continuous basis, using total hydrocarbon continuous emissions analyzers and multiple direct interface GCs. Exhaust gas flow rates were continuously monitored, using pressure and temperature transducers linked to data acquisition systems.

Mitsubishi Power Systems Americas (MPSA), Inc.
Exelon Mystic Station, Everett; MA
Exelon Fore River Station; Weymouth, MA
Wolf Hollow Project Site; Granbury, TX
Covert Generating Station; Covert, MI
Port Westward Project Site; Clatskanie, OR
FP&L West County Energy Center; Loxahatchee, FL
Project Manager and Field Test Leader for emissions monitoring test programs conducted during start-ups at MPS project sites in the United States. Test programs were conducted on multiple combustion gas turbine generators (CTG) with heat recovery steam generators (HRSG) at each site. Test programs included the monitoring of O_2, NO_X, CO, THC, methane, ethane and VOC at the CTG exhaust on a continuous basis, while the units were operating until MPS had completed the tuning of the units. Periodic fuel gas sampling and analysis was also conducted on each unit. The duration of each project varied from a few weeks to several months.

After tuning had been completed, an additional, informal performance guarantee test program was conducted on the first unit operational at the Exelon Mystic Station. The test program included the determination of O_2, NO_X, CO, THC, methane, ethane, VOC and formaldehyde emissions at the CTG and HRSG exhaust stack. Semi-volatile organic compounds (SVOC), including polycyclic aromatic hydrocarbons (PAH) and specific VOC emissions, were also determined at the CTG exhaust, following EPA SW846 testing methods.

Stepan Company; Elwood, IL
Project Manager and Field Test Leader for a volatile organic compound (VOC) test program conducted in the amide production process units. Test program included determining the VOC removal efficiency of a vacuum pump condenser, which controlled emissions from two reactor vessels. The test program also required the determination of FID response factors for the condensate from the vacuum pump condenser compared to propane. Analysis indicated that the FID response factors were not constant, but that the response factors increased as the VOC concentrations increased.

Sargent & Lundy; Ameren Duck Creek Generating Station; Canton, IL
Project Manager and Field Test Leader for ID Fan, ESP and FGD systems performance guarantee test program. The ID Fan test program included determining flue gas composition, velocity, static and total pressures, temperature, fan speed and power consumption at the inlet and outlet of the ID Fans. Sound pressure level measurements were made around fan equipment and the fan efficiency and shaft power were also calculated as part of the guarantee.

ESP test program included determining the particulate removal efficiency and pressure loss across the ESP. Preliminary particulate analysis was conducted on-site ion order to verify the ESP Particulate removal efficiency. The FGD test program included determining the oxidized mercury, SO_2 and SO_3 removal efficiencies and pressure loss across the FGD system as well as particulate loading and emission rates. Raw limestone, limestone slurry and gypsum slurry samples were collected and analyzed to determine reagent/byproduct quality, limestone consumption rates and scrubber stoichiometry. Preliminary particulate, SO_2 and SO_3 results were determined onsite.

The sound pressure levels and power consumption measurements were made at various components of the FGD system as part of the test program. Power consumption was measured with the plant DCS when possible and clamp-on power meters when needed.

The ESP and FGD performance guarantee tests were performed concurrently during a single mobilization with a 21-man test crew. ID fan performance guarantee tests were conducted during a separate mobilization with a five-man test crew.

AmerenEnergy Resources Generating Company; Sioux Power Plant; West Alton, MO
Project Manager and Field Test Leader for ID Booster Fan and FGD systems performance guarantee test program. The ID Fan test program included determining flue gas composition, velocity, static and total pressures, temperature, fan speed and power consumption at the inlet and outlet of the ID Fans. Sound pressure level measurements were made around fan equipment and the fan efficiency and shaft power were also calculated as part of the guarantee.

The FGD test program included determining the oxidized mercury, SO_2 and SO_3 removal efficiencies and pressure loss across the FGD system as well as particulate loading and emission rates. Limestone slurry and gypsum slurry samples were collected and analyzed to determine reagent/byproduct quality, limestone consumption rates and scrubber stoichiometry. Preliminary particulate, SO_2 and SO_3 results were determined onsite.

The sound pressure levels and power consumption measurements were made at various components of the FGD system as part of the test program. Power consumption was measured with the plant DCS when possible and clamp-on power meters when needed.

The ID fan performance guarantee test program for Units 1 and 2, and the Unit 2 FGD performance guarantee tests were performed concurrently during a single mobilization with a 17-man test crew. Unit 1 FGD performance guarantee tests were conducted during a separate mobilization with a 14-man test crew.

Marsulex Environmental Technologies; LCRA Fayette Power Project; La Grange, TX
Project Manager and Field Test Leader for an FGD systems performance guarantee test program. The test program included determining the oxidized mercury, SO_2 and SO_3 removal efficiencies and pressure loss across the FGD system as well as particulate loading and emission rates. Lime-stone slurry and gypsum slurry samples were collected and analyzed to determine reagent/ byproduct quality, limestone consumption rates and scrubber stoichiometry. Preliminary particulate, SO_2 and SO_3 results were determined onsite.

The sound pressure levels and power consumption measurements were made at various components of the FGD system as part of the test program. Power consumption was measured with the plant DCS when possible and clamp-on power meters when needed.

The performance guarantee test program for Units 1 and 2 FGD systems were performed consecutively during a single mobilization with a 10-man test crew.

Permitting and Regulatory Compliance Experience
Former Permit Engineer at Air Solutions in Oak Brook, Illinois. Developed PSD construction permit applications and state operating permit applications, including FESOPs, for a variety of sources. Also developed revisions to Title V permits and assisted clients in negotiations with state agencies with regard to permit conditions. Mr. Ansell has also assisted clients with reporting requirements, such as AERs, Form R Reports and ERMS AERs.

Professional Certifications
Qualified Stack Testing Individual (QSTI) Groups I, II, III and IV, Application No. 2008-271

Education
Bachelor of Science in Mechanical Engineering Technology, 1988
Southern Illinois University; Carbondale, Illinois

Associate of Arts in Liberal Arts, 1985
William Rainey Harper College; Palatine, Illinois

SOURCE EVALUATION SOCIETY

Qualified Source Testing Individual

LET IT BE KNOWN THAT

WILLIAM F. ANSELL, Jr.

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

MANUAL GAS VOLUME MEASUREMENTS AND ISOKINETIC PARTICULATE SAMPLING METHODS

ISSUED THIS 10TH DAY OF MARCH 2017 AND EFFECTIVE UNTIL MARCH 9TH, 2022

Peter R. Westlin, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

Theresa Lowe, QSTI/QSTO Review Board

J. Wade Bice, QSTI/QSTO Review Board

Karen D. Kajiya-Mills , QSTI/QSTO Review Board

Bruce Randall QSTI/QSTO Review Board

CERTIFICATE NO. 2008-271

SOURCE EVALUATION SOCIETY

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MANUAL GASEOUS POLLUTANTS SOURCE SAMPLING METHODS

ISSUED THIS 1ST DAY OF JUNE 2017 AND EFFECTIVE UNTIL MAY 30TH, 2022

Peter R. Westlin, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

Theresa Lowe, QSTI/QSTO Review Board

J. Wade Bice, QSTI/QSTO Review Board

Karen D. Kajiya-Mills , QSTI/QSTO Review Board

Bruce Randall QSTI/QSTO Review Board

CERTIFICATE NO. 2008-271

SOURCE EVALUATION SOCIETY

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GASEOUS POLLUTANTS INSTRUMENTAL SAMPLING METHODS

ISSUED THIS 1ST DAY OF JUNE 2017 AND EFFECTIVE UNTIL MAY 30TH, 2022

Peter R. Westlin, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

Theresa Lowe, QSTI/QSTO Review Board

J. Wade Bice, QSTI/QSTO Review Board

Karen D. Kajiya-Mills , QSTI/QSTO Review Board

Bruce Randall QSTI/QSTO Review Board

CERTIFICATE NO. 2008-271

SOURCE EVALUATION SOCIETY

Qualified Source Testing Individual

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HAZARDOUS METALS MEASUREMENT SAMPLING METHODS

ISSUED THIS 9TH DAY OF JULY 2015 AND EFFECTIVE UNTIL JULY 8TH, 2020

Peter R. Westlin, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

Theresa Lowe, QSTI/QSTO Review Board

C. David Bagwell, QSTI/QSTO Review Board

Karen D. Kajiya-Mills , QSTI/QSTO Review Board

Glenn C. England, QSTI/QSTO Review Board

CERTIFICATE NO. 2008-271

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